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THE SPLIT-LOG DRAG

Description of Simple but Thorough Device

GREAT AID IN ROAD MAKING

Government Experts Tell of Its Utility and How to Make and Use It—Figures on Its Cost Enhance Its Value to the Farmer.

One of the latest publications issued by the Office of Public Roads of the United States Department of Agriculture treats of the split-log drag, an implement which numerous experiments have conclusively shown to be the greatest possible boon to keep earth roads smooth and passable. Because of its simplicity, its efficiency and its cheapness, both in construction and operation, it is destined to come more and more into general use. With the drag properly built and its use well understood, the maintenance of earth roads becomes a simple and inexpensive matter.

At the present time there are approximately 2,000,000 miles of earth roads in the United States. Some of the most important of these roads will eventually be improved with stone, gravel, and other materials. Many others which are equally important cannot be so improved on account of lack of funds or suitable materials, while still others will not require such treatment because of the light traffic to which they are subject. For these reasons the majority of our roads must be maintained as earth roads for many years to come. This must be done by inexpensive methods and the split-log drag will be a powerful aid if economy is the criterion demanded.

In the construction of this implement, care should be taken to make it so light that one man can lift it with ease, a light drag responding more readily to various methods of hitching than a heavy one, as well as to the shifting of the position of the operator. The best material for a split-log drag is a dry red cedar log, though red elm and walnut are excellent, and box elder, soft maple, or even willow are superior to oak, hickory, or ash. The log should be between 7 to 10 feet long and from 10 to 12 inches in diameter at the butt end. It should be split carefully as near the center as possible, and the heaviest and best slab chosen for the front. In the front slab 4 inches from the end which is to drag in the middle of the road

bore a 2-inch hole which is to receive a cross stake. At a distance of 22 inches from the other end of the front slab, locate the center for another cross stake. The hole for the middle stake will be on a line connecting and halfway between the two. Then place the back slab in position and from the end which is to drag in the middle of the road measure 20 inches for the center of one cross stake and 6 inches from the other end locate the center of the opposite stake. The hole for the center stake should be located halfway between the two. All these holes should be carefully bored perpendicular or at right angles to the face of the split log.

If these directions are followed it will be found that when the holes of the front and back slabs are brought opposite each other, one end of the back slab will be 16 inches nearer the center of the roadway than the front one. That gives what is known as "set back." The stakes, which are 30 inches long, will hold the slabs this distance apart. When the stakes have been firmly wedged into their sockets, a brace about 2 inches thick and 4 inches wide may be placed diagonally to them at the ditch end of the drag. A cleated board is placed between the slabs and across the stakes for the driver to stand on.

By many it is deemed best to place a strip of iron along the lower face of the front slab for a cutting blade and to prevent the drag from wearing. The drag may be fastened to the doubletree by means of a trace chain. The chain should be wrapped around the left-hand or rear stake and passed over the front slab. Raising the chain at this end of the slab permits the earth to drift past the face of the drag. The other end of the chain should be passed through a hole in the opposite end of the front slab and held by a pin passed through a link.

For ordinary purposes, the hitch should be made that the unloaded drag will follow the team at an angle of about 45 degrees. The team should be driven with one horse on either side of the right-hand wheel track or rut the full length of the portion to be dragged, and made to return in the same manner over the other half of the roadway. Such treatment will move the earth towards the center of the roadway and raise it gradually above the surrounding level.

The best results have been obtained by dragging roads once each way after each heavy rain. In some cases, however, one dragging every three or four weeks has found sufficient to keep a road in good condition.

When the soil is moist but not sticky the drag does its best work. As the soil in a field will bake if ploughed wet, so the road will bake if the drag is used on it when it is wet. If the roadway is full of holes or badly rutted, the drag should be used once when the ground is soft and slushy. This is particularly applicable before a cold spell in winter, when it is possible to so prepare the surface that it will freeze smooth.

Not infrequently conditions are met which may be overcome by a slight change in the manner of hitching. Shortening the chain tends to lift the front slab and make the cutting slight, while a longer hitch causes the front slab to sink more deeply into the earth and act on the principle of a plow.

If a furrow of earth is to be moved, the doubletree should be attached close to the ditch end of the drag, and the driver should stand with one foot on the extreme forward end of the front slab.

Conditions are so varied in different localities, however, that it is quite impossible to lay down specific rules. Certain sections of a roadway will require more attention than others, because of steep grades, wet weather springs, soil conditions, exposure to sun and wind, washes, etc. There is one condition, however, in which special attention should be given. Clay roads under persistent draggings frequently become too high in the center. This may be corrected by dragging the earth towards the center of the road twice, and away from it once.

There is no question as to the economy of this roadmaking implement, either in first cost or in operation. In six countries in Kansas in 1906 the cost of maintaining ordinary earth roads, without the aid of the split-log drag, averaged \$42.50 a mile. These figures were furnished by Professor W. C. Hoad, of the University of Kansas, who secured them from official records of the countries.

Some figures furnished by F. P. Sanborn and R. H. Aishton, General Manager of the Chicago and Northwestern Railroad, have revealed the wonders of this simple device. Mr. Sanborn said "the least expense per mile per annum for split-log dragging was \$1.50, the greatest a little over \$6, and the average expense per mile for 5 1-2 miles a little over \$3. I have lived along this road all my life

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and never in 40 years have I seen it freer from mud and dust, despite the fact that during the season we have experienced the extremes of weather conditions."

The testimony of Mr. Aishton is equally strong. Learning that a township in Iowa had been making an investigation of the split-log drag and had been experimenting with it for a year on 28 miles of highway, he sent an agent to secure information. It was reported that although the town board had paid the cost of making the drags and of hiring men to operate them, the total expense for one year averaged but \$2.40 a mile,

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